

MONTHLY WEATHER REVIEW.

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BOARD OF EDITORS { Mr. Horace E. Smith, Chief Clerk Weather Bureau,
Professors Henry A. Hazen, Thomas Russell, and Charles F. Marvin, and
Mr. Edward B. Garriott, in charge of Review Room.

INTRODUCTION.

This REVIEW is based on reports for November, 1891, from 2,630 regular and voluntary observers. These reports are classified as follows: 159 reports from Weather Bureau stations; 118 reports from United States Army post surgeons; 1,684 monthly reports from state weather service and voluntary observers; 34 reports from Canadian stations; 214 reports through the Cen-

tral Pacific Railway Company; 421 marine reports through the co-operation of the Hydrographic Office, Navy Department; marine reports through the "New York Herald Weather Service;" monthly reports from local weather services established in all states and territories, except Idaho, and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

CHARACTERISTICS OF THE WEATHER FOR NOVEMBER, 1891.

The month was warmer than usual west of the Rocky Mountains and over the extreme northeastern part of the country, and was colder than the average November in the central valleys and along the Atlantic coast south of the 43d parallel. Over the west part of the middle plateau region and in Oregon the mean temperature was more than 4° above the normal, and in the upper Mississippi and middle Missouri valleys the deficiency exceeded 6°. At a number of stations in the plateau region and on the Pacific coast the month was the warmest November on record. The highest temperature ever reported for November was noted generally from the eastern slope of the Rocky Mountains to the Pacific coast during the first decade of the month. A well-defined cold wave advanced from the Pacific to the Atlantic coasts from the 16th to 18th, with heavy frost to the middle and east Gulf coasts and northern Florida, and a cold wave, which was attended at several stations by the lowest temperature on record for November, extended from Manitoba to the Atlantic coast from the 28th to 30th.

PRECIPITATION.

The monthly precipitation was in excess of the November average from the central lake region to the middle Gulf coast, and from the Red River of the North Valley to the north Pacific coast. In the Atlantic coast states, and over the southwestern and middle-western districts the monthly precipitation was deficient. The greatest excess occurred on the north Pacific coast, where it varied from 5 to 10 inches, and the most marked deficiency was noted over eastern Nova Scotia, where it exceeded 4 inches. At stations on the north Pacific coast, in the upper Missouri valley, from the central lake region over the upper Ohio valley, and in northern Arkansas and western Florida the monthly precipitation was the greatest, and at points west of the lower Missouri and lower Mississippi valleys it was the least ever noted for November. The monthly snowfall exceeded 60 inches at Climax, Colo.; 30 inches in extreme northern upper Michigan; 20 inches in

northeastern southern Idaho and northern Wyoming; and 10 inches in northern New York, the interior of Virginia and North Carolina, northern Indiana, western and southern lower Michigan, and in parts of the Dakotas and western Minnesota. At the close of the month snow was reported on the ground in the interior of the Atlantic coast states from South Carolina northward, in the Lake region and the north part of the Ohio valley, and from the east part of the middle plateau region to the upper Mississippi and Red River of the North valleys.

STORMS.

Heavy wind and rain storms prevailed on the north Pacific coast during the first decade of the month. Heavy gales, with snow, occurred from Nebraska and the Dakotas over the Lake region on the 11th; heavy gales over the Lake region on the 16th and 17th; over the middle Atlantic and New England states on the 17th; over Lake Huron and Saginaw Bay on the 19th; over the Lakes on the 21st; and in the east Gulf states on the 22d. Storms of exceptional severity occurred over the middle Atlantic states and lower lake region on the 23d, resulting in loss of life and property. On the 26th heavy gales were reported over Lake Huron and Saginaw Bay; and on the 29th high winds prevailed along the Virginia and North Carolina coasts.

INLAND NAVIGATION.

By the close of the month the rivers in the northern tier of states were generally frozen over, and navigation was closed for the season. Navigation was reported closed for the season in the canals of New York, except the Erie, on the 30th.

DROUGHT.

Drought continued during the month in western Texas, Arizona, southern Kansas, and western Missouri. The drought in parts of New England and eastern New York, and in sections of the south Atlantic and Gulf states, Tennessee, Indian Territory, and the lower Ohio valley was broken during the first and second decades of the month.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for November, 1891, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on Chart II by isobars.